

# EAST Search History

- 10/545, 165

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2916	((Kazushige and Kojima) (Kojiro and Tachi) (Hisayoshi and Fujikawa) (Koji and Noda) (Masahiko and Ishii) (Yasunori and Taga) (Makoto and Satsuki) (Makoto and Fujiwara) (Natsuko and Ishida) (Sadaharu and Suga)).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:18
L2	267646	(428/690 428/917 313/504 313/506).ccls. or opto-electr\$ or electro-optic\$ or electrolumine\$ or OLED or electro-lumines\$ or light-emitting	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:29
L3	132	1 and 2	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:19
L4	10	hole.clm. and electron.clm. and I3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:20
L5	10	hole\$.clm. and electron\$.clm. and I3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:20
L6	4	coumarin.clm. and I3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:20
L7	13	5 or 6	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:29
L8	1	5 and 6	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:20
L9	268175	(428/690 428/917 313/504 313/506 313/483).ccls. or opto-electr\$ or electro-optic\$ or electrolumine\$ or OLED or electro-lumines\$ or light-emitting	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:51
L10	132	1 and 9	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:29

## EAST Search History

L11	2	"20050275341"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:52
L12	4	"2003050106"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:57
L13	72	coumarin with ((glass adj3 transit\$) or "t.sub.c" or (melting adj3 point))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 17:06
L14	13	9 and 13	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 16:58
L15	76	coumarin with ((glass adj3 transit\$) or "t.sub.g" or (melting adj3 point))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 17:06
L16	17	15 and 9	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 17:06
L17	4	16 not 14	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2007/03/05 17:06

=> fil reg

FILE 'REGISTRY' ENTERED AT 09:17:07 ON 05 MAR 2007  
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
 COPYRIGHT (C) 2007 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file  
 provided by InfoChem.

STRUCTURE FILE UPDATES: 4 MAR 2007 HIGHEST RN 924728-01-8  
 DICTIONARY FILE UPDATES: 4 MAR 2007 HIGHEST RN 924728-01-8

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH December 2, 2006

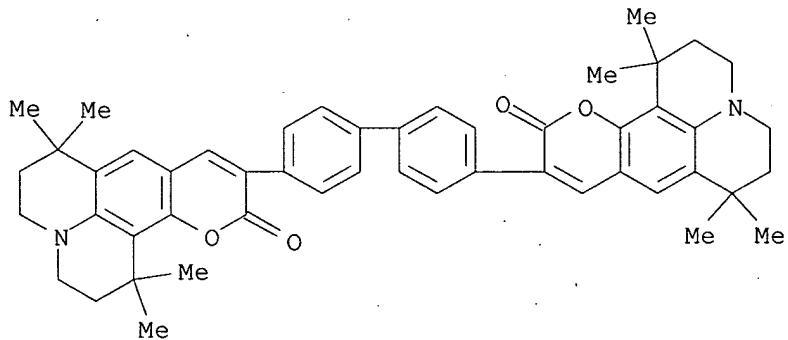
Please note that search-term pricing does apply when  
 conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and  
 predicted properties as well as tags indicating availability of  
 experimental property data in the original document. For information  
 on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> d 110 ide can tot

L10 ANSWER 1 OF 3 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 543701-49-1 REGISTRY  
 ED Entered STN: 07 Jul 2003  
 CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-[1,1'-  
 biphenyl]-4,4'-diylbis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA  
 INDEX NAME)  
 MF C50 H52 N2 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL



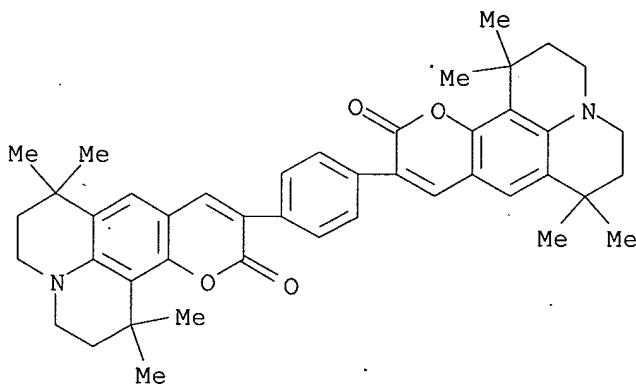
\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:232972

REFERENCE 2: 139:44021

L10 ANSWER 2 OF 3 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN **543701-39-9** REGISTRY  
 ED Entered STN: 07 Jul 2003  
 CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,4-phenylene)bis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)  
 MF C44 H48 N2 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

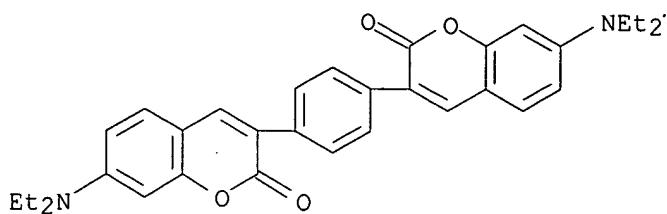
3 REFERENCES IN FILE CA (1907 TO DATE)  
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:357677

REFERENCE 2: 141:232972

REFERENCE 3: 139:44021

L10 ANSWER 3 OF 3 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN **475628-63-8** REGISTRY  
 ED Entered STN: 11 Dec 2002  
 CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)- (9CI) (CA INDEX NAME)  
 OTHER NAMES:  
 CN NKX 2555  
 MF C32 H32 N2 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

3 REFERENCES IN FILE CA (1907 TO DATE)  
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

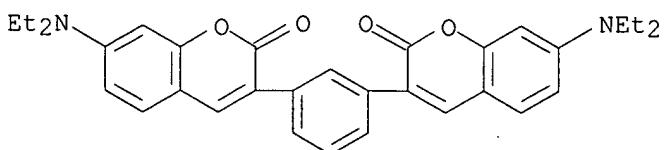
REFERENCE 1: 141:232972

REFERENCE 2: 139:44021

REFERENCE 3: 137:390521

=> d 19 ide can

L9 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 475628-62-7 REGISTRY  
 ED Entered STN: 11 Dec 2002  
 CN 2H-1-Benzopyran-2-one, 3,3'-(1,3-phenylene)bis[7-(diethylamino)- (9CI)  
 (CA INDEX NAME)  
 OTHER NAMES:  
 CN NKX 2550  
 MF C32 H32 N2 O4  
 SR CA  
 LC STN Files: CA, CAPLUS, USPATFULL



\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

2 REFERENCES IN FILE CA (1907 TO DATE)  
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:44021

REFERENCE 2: 137:390521

=> d his

(FILE 'HOME' ENTERED AT 09:08:59 ON 05 MAR 2007)

jan delaval - 5 march 2007

SET COST OFF

FILE 'HCAPLUS' ENTERED AT 09:09:33 ON 05 MAR 2007

L1 1 S US20060192473/PN OR (US2005-545165# OR WO2004-JP1447 OR JP200  
SEL RN

FILE 'REGISTRY' ENTERED AT 09:10:08 ON 05 MAR 2007

L2 4 S E1-E4  
L3 3 S L2 AND NR>=5  
SEL RN  
L4 0 S E5-E7/CRN  
E C32H32N2O4/MF  
L5 5 S E3 AND 46.150.18/RID AND OC5-C6/ES AND 5/NR  
L6 2 S L5 NOT (NC5 OR C3)/ES  
E C44H48N2O4/MF  
L7 1 S E3 AND 46.150.18/RID AND 9/NR  
E C50H52N2O4/MF  
L8 1 S E3 AND 46.150.18/RID AND 10/NR  
L9 1 S L6 NOT L3  
L10 3 S L3,L7,L8

FILE 'HCAOLD' ENTERED AT 09:13:29 ON 05 MAR 2007

L11 0 S L10  
L12 0 S L9

FILE 'HCAPLUS' ENTERED AT 09:13:36 ON 05 MAR 2007

L13 4 S L10  
L14 2 S L9  
L15 3 S L13,L14 AND (PY<=2003 OR PRY<=2003 OR AY<=2003)  
L16 4 S L13,L14 AND (KOJIMA? OR TACHI? OR FUJIKAWA? OR NODA? OR ISHII  
L17 0 S L13,L14 NOT L15,L16  
L18 4 S L13-L16  
SEL RN L18

FILE 'REGISTRY' ENTERED AT 09:15:33 ON 05 MAR 2007

L19 39 S E1-E44 NOT L9,L10,L2

FILE 'HCAPLUS' ENTERED AT 09:16:35 ON 05 MAR 2007

FILE 'USPATFULL' ENTERED AT 09:16:52 ON 05 MAR 2007  
L20 2 S L10

FILE 'REGISTRY' ENTERED AT 09:17:07 ON 05 MAR 2007

=&gt; fil uspatful

FILE 'USPATFULL' ENTERED AT 09:17:23 ON 05 MAR 2007  
CA INDEXING COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)FILE COVERS 1971 TO PATENT PUBLICATION DATE: 1 Mar 2007 (20070301/PD)  
FILE LAST UPDATED: 1 Mar 2007 (20070301/ED)  
HIGHEST GRANTED PATENT NUMBER: US7185369  
HIGHEST APPLICATION PUBLICATION NUMBER: US2007050874  
CA INDEXING IS CURRENT THROUGH 1 Mar 2007 (20070301/UPCA)  
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 1 Mar 2007 (20070301/PD)  
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Aug 2006  
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Aug 2006

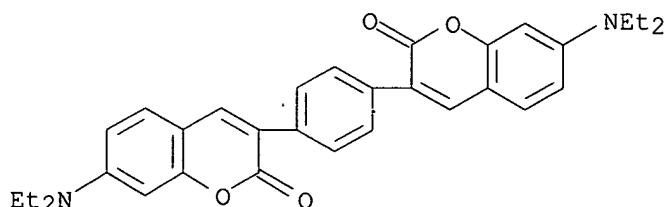
=&gt; d 120 bib abs hitstr tot

L20 ANSWER 1 OF 2 USPATFULL on STN  
 AN 2006:226112 USPATFULL  
 TI Organic electroluminescent device  
 IN Kojima, Kazushige, Aichi, JAPAN  
 Tachi, Kojiro, Aichi, JAPAN  
 Fujikawa, Hisayoshi, Aichi, JAPAN  
 Noda, Koji, Aichi, JAPAN  
 Ishii, Masahiko, Aichi, JAPAN  
 Taga, Yasunori, Aichi, JAPAN  
 Satsuki, Makoto, Okayama, JAPAN  
 Fujiwara, Makoto, Okayama, JAPAN  
 Ishida, Natsuko, Okayama, JAPAN  
 Suga, Sadaharu, Okayama, JAPAN  
 PI US 2006192473 A1 20060831 *current application*  
 AI US 2004-545165 A1 20040212 (10)  
 WO 2004-JP1447 20040212  
 20050811 PCT 371 date  
 PRAI JP 2003-33712 20030212  
 DT Utility  
 FS APPLICATION  
 LREP BROWDY AND NEIMARK, P.L.L.C., 624 NINTH STREET, NW, SUITE 300,  
 WASHINGTON, DC, 20001-5303, US  
 CLMN Number of Claims: 19  
 ECL Exemplary Claim: 1  
 DRWN 2 Drawing Page(s)  
 LN.CNT 1101  
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention has an objective to improve durability at elevated temperature in organic electroluminescent devices using coumarin derivatives as dopant in a luminescent layer. This invention attains the above objective by providing in the organic electroluminescent devices formed by laminating an anode, a hole injection layer, a hole transportation layer, a luminescent layer, an electron transportation layer and a cathode in this order, the luminescent layer which comprises as dopant the green light-emitting coumarin derivative and hole- and electron-transporting substances as host; said coumarin derivative consisting of a plurality of coumarin groups bound to an aromatic ring, heterocycle, or any combination thereof, and exhibiting a glass transition point of 150° C. or higher or a melting point of 297° C. or higher.

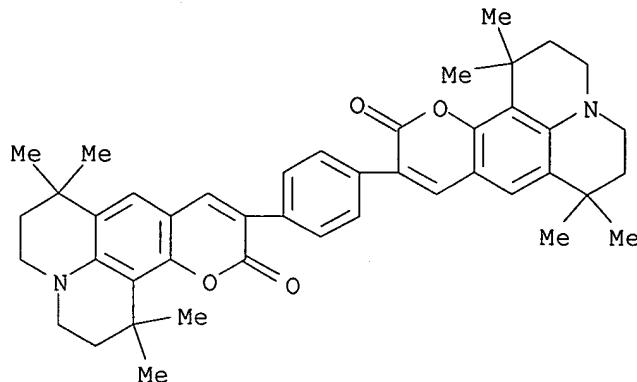
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 475628-63-8 543701-39-9 543701-49-1  
 (organic electroluminescent device using coumarin derivative as dopant)  
 RN 475628-63-8 USPATFULL  
 CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)- (9CI)  
 (CA INDEX NAME)



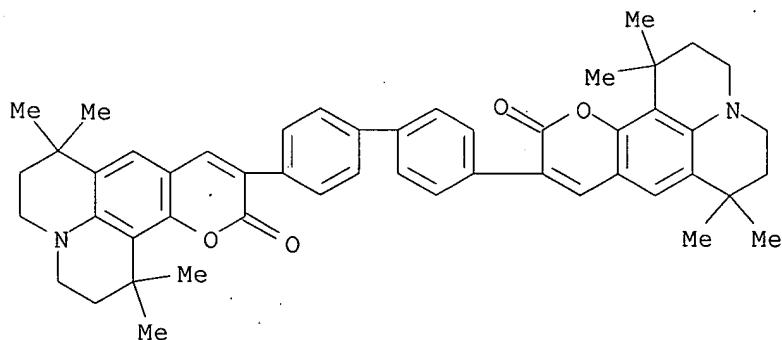
RN 543701-39-9 USPATFULL

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,4-phenylene)bis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



RN 543701-49-1 USPATFULL

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,1'-biphenyl)-4,4'-diylbis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



L20 ANSWER 2 OF 2 USPATFULL on STN

AN 2005:316609 USPATFULL

TI Coumarin compound

IN Satsuki, Makoto, Okayama, JAPAN  
Fujiwara, Makoto, Okayama, JAPAN  
Ishida, Natsuko, Okayama, JAPAN  
Suga, Sadaharu, Okayama, JAPAN  
Fujikawa, Hisayoshi, Aichi, JAPAN  
Takeuchi, Hisato, Aichi, JAPAN  
Taga, Yasunori, Aichi, JAPAN

PI US 2005275341 A1 20051215

AI US 2003-498477 A1 20021210 (10)  
WO 2002-JP12918 20021210

20040614 PCT 371 date

PRAI JP 2001-379529 20011213  
JP 2003-2002117617 20020419  
JP 2003-2002119823 20020422  
JP 2003-2002343200 20021127

JP 2003-2002343225 20021127

DT Utility  
FS APPLICATION

LREP BROWDY AND NEIMARK, P.L.L.C., 624 NINTH STREET, NW, SUITE 300,  
WASHINGTON, DC, 20001-5303, US

CLMN Number of Claims: 7

ECL Exemplary Claim: 1

DRWN 2 Drawing Page(s)

LN.CNT 2083

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB A method for producing a coumarin compound represented by Formula 1, which comprises a step of reacting a coumarin compound represented by Formula 1 with a compound having an aldehyde group and an activated methylene group; luminous agents for organic EL elements and organic EL elements which all comprise the coumarin compound; and displaying panels and information displaying apparatuses using the organic EL elements:  
.o slashed.(Z)<sup>m</sup> Formula 1 wherein in Formula 1, .o slashed. is an aromatic ring, heterocycle, or a combination thereof, each Z is the same or a different coumarin group represented by Formula 2; and m is an integer of two or more; Formula 2: ##STR1##

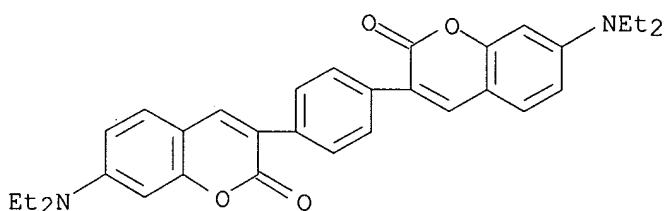
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 475628-63-8P 543701-39-9P 543701-49-1P

(preparation of coumarin derivs. for electroluminescent devices)

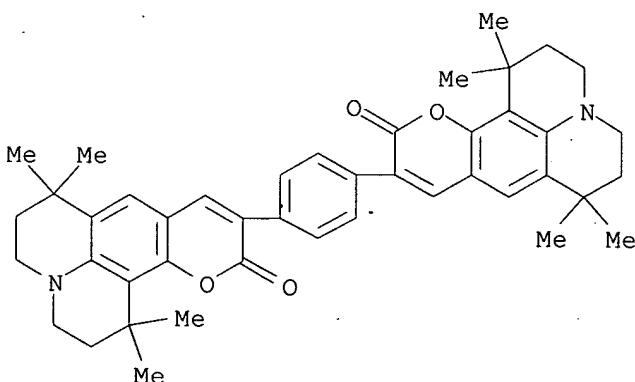
RN 475628-63-8 USPATELL

CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)- (9CI)  
(CA INDEX NAME):

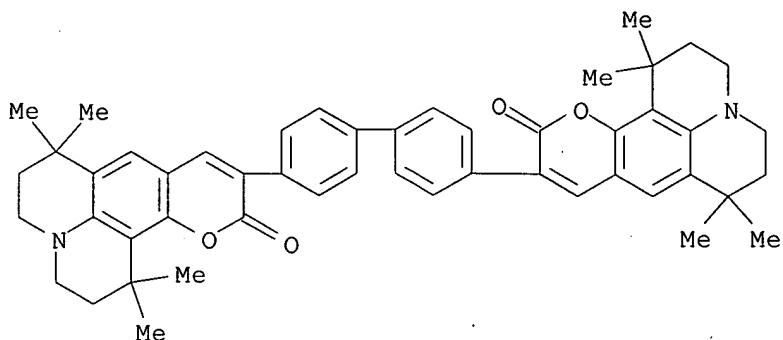


RN 543701-39-9 USPATFULL

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,4-phenylene)bis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



RN 543701-49-1 USPATFULL  
 CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-[1,1'-biphenyl]-4,4'-diylbis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI)  
 (CA INDEX NAME)



=> fil hcaplus  
 FILE 'HCAPLUS' ENTERED AT 09:17:35 ON 05 MAR 2007  
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
 COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 5 Mar 2007 VOL 146 ISS 11  
 FILE LAST UPDATED: 4 Mar 2007 (20070304/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d bib abs hitstr retable tot 118

L18 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2004:698200 HCAPLUS  
 DN 141:232972  
 TI Organic electroluminescent device using coumarin derivative as dopant  
 IN Kojima, Kazushige; Tachi, Kojiro; Fujikawa, Hisayoshi; Noda, Koji; Ishii, Masahiko; Taga, Yasunori; Satsuki, Makoto; Fujiwara, Makoto; Ishida, Natsuko; Suga, Sadaharu  
 PA Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Japan; et al.  
 SO PCT Int. Appl., 43 pp.

CODEN: PIXXD2

DT Patent  
 LA Japanese  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004072206	A1	20040826	WO 2004-JP1447	20040212 <--
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	JP 2004265623	A	20040924	JP 2003-33712	20030212 <--
	US 2006192473	A1	20060831	US 2005-645165	20050811 <--

current app.

PRAI JP 2003-33712 A 20030212 <--  
 WO 2004-JP1447 W 20040212

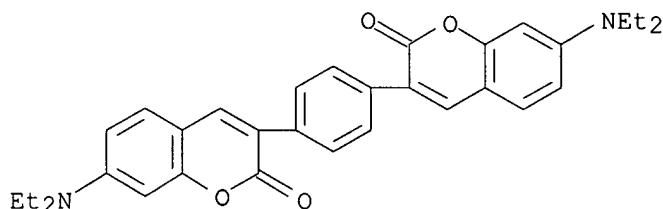
AB The invention refers to an organic electroluminescent device comprising a coumarin derivative as a dopant in the light emitting layer, wherein the coumarin derivative contains multiple coumarin groups bonded to an aromatic ring,

a heterocycle or a combination thereof, the coumarin derivative has a glass transition temperature of 150° or higher or a m.p. of 297° or higher.

IT 475628-63-8 543701-39-9 543701-49-1

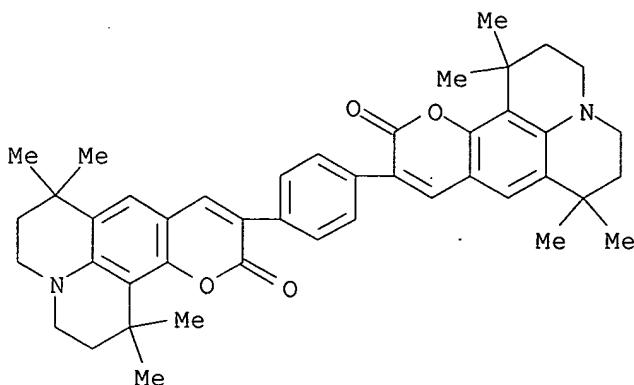
RL: DEV (Device component use); USES (Uses)  
 (organic electroluminescent device using coumarin derivative as dopant)

RN 475628-63-8 HCAPLUS

CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)- (9CI)  
 (CA INDEX NAME)

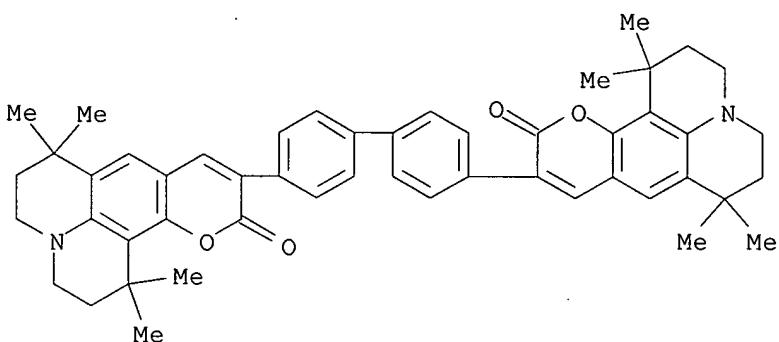
RN 543701-39-9 HCAPLUS

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,4-phenylene)bis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



RN 543701-49-1 HCPLUS

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-[1,1'-biphenyl]-4,4'-diylbis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



L18 ANSWER 2 OF 4 HCPLUS COPYRIGHT 2007 ACS on STN

AN 2004:635300 HCPLUS

DN 141:357677

TI The correlation between glass transition point of dopant and device life of OEL

AU Satsuki, Makoto; Fujiwara, Makoto; Sonoda, Natsuko; Suga, Sadaharu

CS Drugs, Cosmetics &amp; Chemicals Development Center, Hayashibara Biochemical Lab., Okayama, 700-0907, Japan

SO Journal of Photopolymer Science and Technology (2004), 17(2), 297-300  
CODEN: JSTEEW; ISSN: 0914-9244

PB Technical Association of Photopolymers, Japan

DT Journal

LA English

AB A study was conducted to determine the correlation between the glass transition (TG) point of green dopants and organic electroluminescent (OEL) device lifetime. A pos. correlation was obtained between TG of the dopant and OEL device lifetime. Device life decreases with increasing dopant TG. Further studies are needed to obtain an accurate correlation between dopant TG and OEL device lifetime.

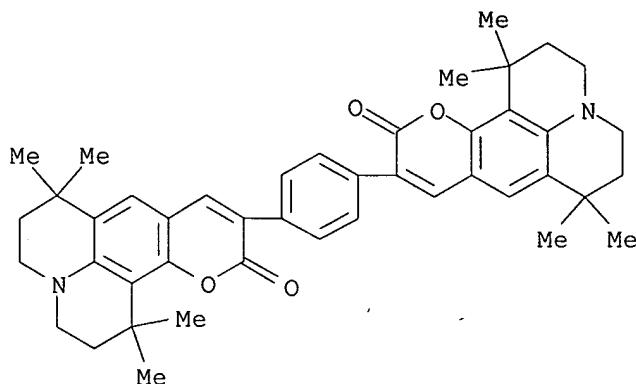
IT 543701-39-9

RL: DEV (Device component use); MOA (Modifier or additive use); PEP

(Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
 (correlation between organic electroluminescent device lifetime and glass transition point of)

RN 543701-39-9 HCAPLUS

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,4-phenylene)bis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (R WK)	Referenced File
Anon				JP 2001-220577	H CAPLUS
Anon				JP 2001-329257	H CAPLUS
Anon				JP 2001-52869	
Anon				JP 2001-76876	
Anon				JP 2001-81090	
Hosokawa, C	1995	67	3853	Appl Phys Lett	H CAPLUS
Mitsuya, M	2000	77	3272	Appl Phys Lett	H CAPLUS
Sato, Y	1996		225	Inorganic Organic El	
Shi, J	1997	70	1665	Appl Phys Lett	H CAPLUS
Tang, C	1989	65	3610	J Appl Phys	H CAPLUS
Wakimoto, T	1997	15	91	Synthetic Metal	

L18 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:472504 HCAPLUS

DN 139:44021

TI Preparation of coumarin derivatives for electroluminescent devices

IN Satsuki, Makoto; Fujiwara, Makoto; Ishida, Natsuko; Suga, Sadaharu; Fujikawa, Hisayoshi; Takeuchi, Hisato; Taga, Yasunori

PA Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Japan

SO PCT Int. Appl., 283 pp.

CODEN: PIXXD2

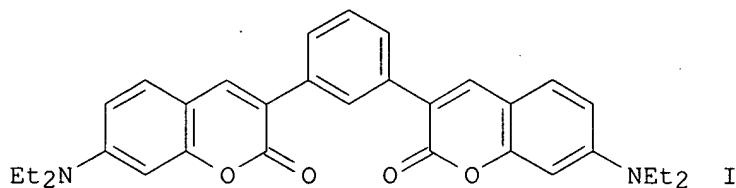
DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003050106 W: KR, US JP 2004002285	A1	20030619	WO 2002-JP12918	20021210 <--
	A	20040108	JP 2002-343200	20021127 <--

JP 2004006222	A 20040108	JP 2002-343225	20021127 <--
US 2005275341	A1 20051215	US 2004-498477	20040614 <--
PRAI JP 2001-379529	A 20011213	<--	
JP 2002-117617	A 20020419	<--	
JP 2002-119823	A 20020422	<--	
JP 2002-343200	A 20021127	<--	
JP 2002-343225	A 20021127	<--	
WO 2002-JP12918	W 20021210	<--	
OS MARPAT 139:44021			
GI			

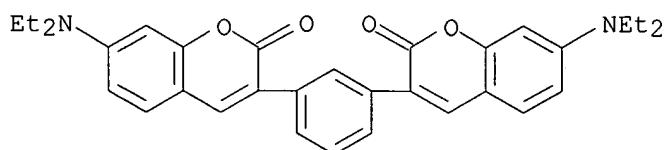


AB The title coumarin compds. with general formula of Ar(Z)<sup>m</sup> [wherein Ar = (un)substituted aromatic ring or heterocycl, etc.; Z = (un)substituted coumarin-2-yl; m ≥ 2] are prepared by reacting a compound having an aldehyde group with a compound having an active methylene group as electroluminescent materials. For example, 4-(diethylamino)salicylaldehyde was reacted with m-phenylenediacetonitrile in xylene in the presence of AcOH and pyridine to give I. These compds. are useful for electroluminescent devices.

IT 475628-62-7P 475628-63-8P 543701-39-9P  
543701-49-1P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of coumarin derivs. for electroluminescent devices)

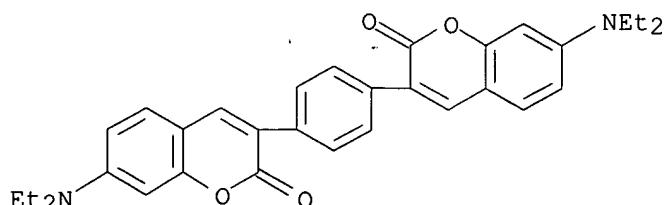
RN 475628-62-7 HCPLUS

CN 2H-1-Benzopyran-2-one, 3,3'-(1,3-phenylene)bis[7-(diethylamino)-] (9CI)  
(CA INDEX NAME)



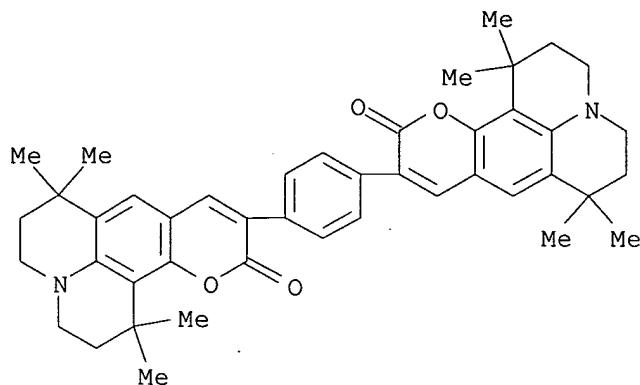
RN 475628-63-8 HCPLUS

CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)-] (9CI)  
(CA INDEX NAME)



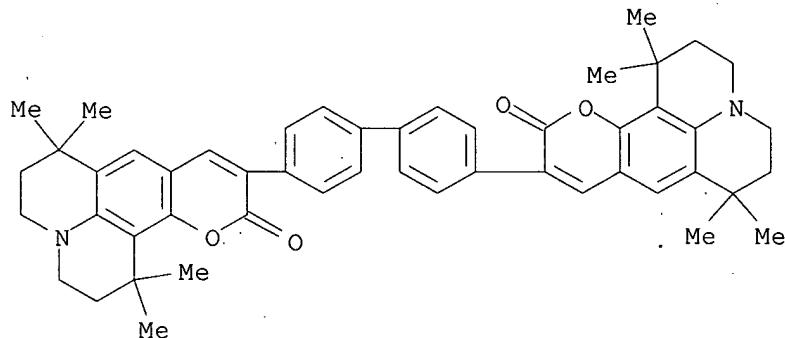
RN 543701-39-9 HCAPLUS

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-(1,4-phenylene)bis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)



RN 543701-49-1 HCAPLUS

CN 1H,5H,11H-[1]Benzopyrano[6,7,8-ij]quinolizin-11-one, 10,10'-[1,1'-biphenyl]-4,4'-diylbis[2,3,6,7-tetrahydro-1,1,7,7-tetramethyl- (9CI) (CA INDEX NAME)

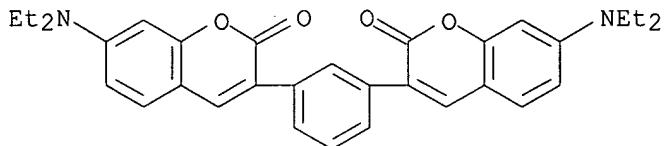


## RETABLE

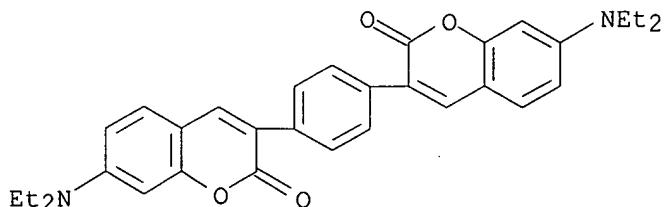
Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (RWK)	Referenced File
Aisin Seiki Co Ltd	1991			JP 03-72898 A	HCAPLUS
Chodankar, N	1985	6	331	Absorption-Emission	HCAPLUS
Ciba-Geigy Ag	1973			DE 2240037 A	HCAPLUS
Idemitsu Kosan Co Ltd	2000			JP 2000192028 A	HCAPLUS
Idemitsu Kosan Co Ltd	2000			JP 2000273055 A	HCAPLUS
Idemitsu Kosan Co Ltd	2001			WO 0172673 A1	HCAPLUS
Idemitsu Kosan Co Ltd	2001			EP 1182183 A1	HCAPLUS
Idemitsu Kosan Co Ltd	2001			CN 1365347 A	
Idemitsu Kosan Co Ltd	2001			US 20020048687 A1	
Idemitsu Kosan Co Ltd	2001			KR 2002026864 A	
Omar, I	1998	2	71	Character of electro	
Rajeswar, R	1996	113	47	Synthesis of Some Ne	
Silin, A	1997	395	1264	Synthesis of 4, 4-di	HCAPLUS

Tavakovic, I | 1982 | 47 | 339 | Glasnik Hemijskog Dr |

L18 ANSWER 4 OF 4 HCPLUS COPYRIGHT 2007 ACS on STN  
 AN 2002:633272 HCPLUS  
 DN 137:390521  
 TI Investigation of blue dopant used coumarin derivatives  
 AU Fujiwara, Makoto; Ishida, Natsuko; Satsuki, Makoto; Suga, Sadaharu  
 CS Kankoh-Shikiso Institute, HAYASHIBARA BIOCHEMICAL LABORATORIES., INC., Okayama, 701-0221, Japan  
 SO Journal of Photopolymer Science and Technology (2002), 15(2), 237-238  
 CODEN: JSTEEW; ISSN: 0914-9244  
 PB Technical Association of Photopolymers, Japan  
 DT Journal  
 LA English  
 AB An attempt was made to synthesize coumarin derivs. as dopants to LEDs. The maximum of absorption and fluorescence and some thermal characteristics are summarized. The p-bonding gave good results, both at efficiency and life of a device. The wavelength of the substituent as blue dopants was too long by viewing the color of the Energy Level device.  
 IT 475628-62-7, NKK 2550 475628-63-8, NKK 2555  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
 (blue dopant in LEDs based on coumarin derivs.)  
 RN 475628-62-7 HCPLUS  
 CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)- (9CI) (CA INDEX NAME)



RN 475628-63-8 HCPLUS  
 CN 2H-1-Benzopyran-2-one, 3,3'-(1,4-phenylene)bis[7-(diethylamino)- (9CI) (CA INDEX NAME)



## RETABLE

Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (R WK)	Referenced File
Anon				JP 2001220577	
Anon				JP 2001329257	
Anon				JP 200152869	

garrett - 10 / 545165

Page 15

Anon			JP 200176876	
Anon			JP 200181090	
Anon			JP 773272	
Anon	2000		J Appl Phys Lett	

=>

jan delaval - 5 march 2007



# STIC Search Report

**EIC 1700**

STIC Database Tracking Number: 216630

**TO:** Dawn Garrett  
**Location:** Remsen 10c79  
**Art Unit :** 1774  
**March 5, 2007**  
**Phone:** 571-272-1523  
**Serial Number:** 10 / 545165

**From:** Jan Delaval  
**Location:** EIC 1700  
**Remsen 4a30**  
**Phone:** 571-272-2504  
**[jan.delaval@uspto.gov](mailto:jan.delaval@uspto.gov)**

## Search Notes

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAVID E. HERZETT Examiner #: 76107 Date: 2/27/07  
 Art Unit: 1774 Phone Number 303-545-1655 Serial Number: 10/545,165  
 Mail Box and Bldg/Room Location: REGN 100-179 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: (See attached B-6)

Inventors (please provide full names): (data sheet)

Earliest Priority Filing Date:

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please review formulas 1, 2, and 3

Attached.

Thank you.

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher:	<u>John</u>	NA Sequence (#)	STN <input checked="" type="checkbox"/>
Searcher Phone #:	<u>303-504</u>	AA Sequence (#)	Dialog <input type="checkbox"/>
Searcher Location:		Structure (#)	Questel/Orbit <input type="checkbox"/>
Date Searcher Picked Up:	<u>3/5/07</u>	Bibliographic	Dr. Link <input type="checkbox"/>
Date Completed:	<u>3/5/07</u>	Litigation	Lexis/Nexis <input type="checkbox"/>
Searcher Prep & Review Time:		Fulltext	Sequence Systems <input type="checkbox"/>
Clerical Prep Time:	<u>15</u>	Patent Family	WWW/Internet <input type="checkbox"/>
Online Time:	<u>710</u>	Other	Other (specify) <input type="checkbox"/>